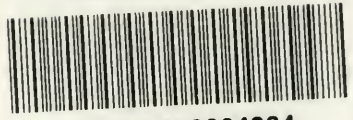


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FEDERAL REGULATION OF RAIL-  
ROAD SECURITIES AND VALUATION  
OF RAILROAD PROPERTIES : : :

Letter to the Railroad Securities Commis-  
sion in Reply to their Request for  
Information and Opinions

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By HENRY FINK

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NEW YORK, December 31, 1910

Mr. W. E. S. GRISWOLD, SECRETARY,  
*Railroad Securities Commission,*  
WASHINGTON, D. C.

Dear Sir:-

In answer to your communication of the 10th instant, I submit the following:

219a '13 Hague  
1. The advocates of the supervision and control by the Federal Government over the issuance of stocks and bonds by interstate railroads appear to have two objects in view; the protection of the investors in such securities against over-capitalization and the protection of shippers against unreasonable railroad rates by restricting the income of such roads to what may be considered a "reasonable return on the fair value of the property used in the public service." I do not believe that either of these objects can be attained by the proposed regulation. Moreover, I think that such regulation is not needed and that it would create conditions that must prove harmful to the public welfare. It would certainly have a tendency to impair the credit of the corporations and render it difficult to borrow the money they need in giving the public adequate and efficient services. For these and other reasons, I deem such regulation to any extent or by any methods undesirable.

2. I am not competent to express an opinion as to whether the commerce clause of the constitution, when stretched to its utmost limits, would enable the Federal Government to *legally* exercise control over the securities of corporations which were created by the states and which are subject to state laws. If such control is not exclusive and the corporations are made subject to both Federal and state regulation in this matter, it is obvious that we will have a multiplication of the evils resulting from the existing dual control of railways. The supervision and control of the issuance of stocks and bonds by the Federal Government seems to me unwise.

3. I am of the opinion that it is not one of the functions of our government to pass special laws for the protection of any one class of investors and that such laws are not needed because existing laws provide for the punishment of parties who are guilty of fraudulent practices in connection with the issuance of stocks and bonds. Moreover, attempts to protect people against the consequences of their bad judgment in the selection of securities for investments must always prove futile.

4. It has been proved repeatedly that with the exception of some few cases, American railroads are not over-capitalized in the sense that the par value of the bonds and stocks issued exceeds the fair value of the property represented by such securities. I believe that the true measure of the value of a railroad is its earning capacity and the degree of efficiency with which it serves the public and that a railroad is over-capitalized when for any reason it is unable to earn its fixed charges and a reasonable dividend on its capital shares. When a railroad is unable to earn the interest on its bonded debt, the evil of over-capitalization corrects itself, either through a growth of its traffic or through bankruptcy and reorganization.

5. I do not think it advisable to limit the issuance of capital stock at par for money or property of the actual value of the par of the stock issued, nor to require that all bonds must be sold at not less than par. We need more railroad mileage in this country and the limitation would prevent or at least retard its construction except by old established roads whose credit is very high. Moreover, the limitation would render consolidations and reorganizations so difficult as to be well-nigh impossible.

6. I can see no objection to the sale to stockholders of new stock at par, when the old stock is selling above par in the market. The distribution of the premium among stockholders is in the nature of an extra dividend and an inducement to purchase the new stock.

7. I am of the opinion that capitalization of betterments, additions, and extensions, charged in the past to "Income"

but which might have been charged to "Capital" is improper. The charge to "Income" should close the account, otherwise there will be room for manipulation of accounts.

8. I am of the opinion that the physical valuation scheme does not deserve serious consideration. It rests upon the assumption that the cost of a railroad is identical with its value and that such value can be obtained by ascertaining the original cost of the road or the cost of replacing the property, that the results can be used as a criterion of the reasonableness of rates and that such rates can be established so as to give each road a reasonable return on the property used in the public service. Every one of these assumptions is fallacious. The value of a road can be measured only by its earning capacity. The original cost and the cost of reproduction have no relation whatever to railroad rates, nor can such rates be established for each road so as to give it a reasonable return. Railroads have been located, constructed and are being operated under conditions that vary within wide limits. Hence, rates cannot be made that will give each road a reasonable return on the property. Obviously, all roads that compete, either directly or through competition between markets, must have the same rates. Any one who is familiar with railroad transportation, knows that the idea of basing rates on valuation of the property of railroads, or on capitalization is repugnant to common sense. It is not only impossible to arrive at any just valuation by the proposed methods, but the results obtained at great expense of time and money cannot serve any useful purpose. The valuation scheme probably originated in an erroneous interpretation of the decision of the United States Supreme Court in the case of *Smyth vs. Ames*, it being assumed that "a reasonable return upon the fair value of the property used in the public service, is the *only* element to be considered in determining the reasonableness of rates, although the court in that case distinctly says that it is only one of the numerous elements, some of which it specifies." The erroneous interpretation has proved a fruitful source of error in the investigation and decisions of rate cases. This is particularly true of cases involving the reasonableness of rates made by state legislatures and State Railway Commissions,

where railroads have practically no other defense than to endeavor to show that such rates are confiscatory, they have to submit evidence, showing that certain specific rates do not cover the cost of transportation, and a reasonable return on that part of the property which is used and that, therefore, such specific rates are confiscatory and in violation of the constitution. While such evidence can be obtained as to the *entire traffic* of a railroad, it is impossible to ascertain the cost of any specific shipment or of conducting any branch of the transportation service, nor the value of the property used in such service. This is so, because no rational method has as yet been devised for apportioning the operating expenses and the value of the property used among the several services rendered by the railroad. The reasonableness of specific rates cannot be determined by ascertaining whether the revenue derived from the entire traffic yields the company a fair return. Such return may be fair in the aggregate, and yet many of the individual rates or rates on whole classes may be unreasonably high or unreasonably low. In fact, they may be so low, as to be confiscatory.

In the Virginia Maximum Passenger Rate case, the Corporation Commission went so far as to express the opinion that it was not the question of reasonableness of rates, but the reasonableness of revenue that is involved in rate cases, and that the Commission is at liberty to make any reduction it may see fit in the rates on any articles or any branch of service it may select, provided the revenue from the entire traffic is sufficient to give the road what the Commission may deem a reasonable return on the property used.

The Maximum Passenger Rate case, decided April, 1907, by the State Corporation Commission of Virginia and the order of the Railroad Commission of Kentucky governing rates on general merchandise in the case of the Commonwealth of Kentucky *vs.* the Louisville & Nashville Railroad Company, *et al.* affords striking illustrations of the fallacy of the theory that the valuation of railroad property can be used as a basis for determining the reasonableness of rates and of capitalization. These decisions show that any result that may be desired in the matter of value of property used, and the return on such value can be



obtained by the adoption of suitable methods of valuation, and of the apportionment of operating expenses and the value of property among the several services rendered by a railroad. It is in my opinion difficult to escape the conclusion that the theory of reasonable return on the fair value of the property used is fallacious and impracticable of application. As a matter of fact, railroad companies are not entitled to a reasonable return on the fair value of the property used. They are entitled only to what they can earn, be it much or little, by charging rates that are just, reasonable, and undiscriminatory, the reasonableness of rates being determined by commercial and competitive conditions and the value of the service to the shipper and to the railroad.

9. Some of the proposed methods of valuation, while having the appearance of scientific analysis, necessarily resolve themselves into guess work. Of course, such so-called valuation can be made by any Federal agency.

10. The Interstate Commerce Commission is overwhelmed with work, Congress having already imposed duties upon it without regard to its physical ability to properly perform them. To give the Commission supervision and control over the issuance of stocks and bonds would enormously increase its work. Heretofore, the Commission has decided cases by careful investigation of all the facts and circumstances that bear upon the question of reasonableness of rates. The question arises, will it be able to continue this, the only fair method, if it were given supervision practically to a large extent over the finances of the railroad? Is it not to be feared that the Commission would avail itself of an official valuation as a short-cut to the determination of rate questions? This seems to me to be the only use that could be made of the valuation scheme, but such use cannot be considered as legitimate, because the Act to Regulate Commerce requires that decisions must be based upon proper investigation.

I have endeavored to answer the questions in the order in which they are propounded, expressing my opinions without supporting them at length by facts and arguments.

In compliance with the request that I furnish the Commission with any of my views that have been printed, I herewith enclose copies of two chapters of a monograph I wrote in 1907 (about the time the question of valuation of railroads was first agitated), on the "Valuation of Railroad Properties as a Basis for Regulation of Rates." One of these chapters treats of "Over-capitalization", the other of "Valuation of Railroad Properties." They were published by the Railway Age Gazette in July, 1908.

The following are some of the conclusions I reached, upon investigation of the subject:

#### I.

The value of the property used has no direct relation to rates; hence, rates cannot be based upon such value, nor can the reasonableness be ascertained upon the basis of such valuation.

#### II.

The value of railroad property cannot be determined by a physical valuation. The only measure of value that can be properly applied is the earning capacity.

#### III.

The earning capacity depends on the rates that can be charged and on the volume and character of the traffic. The rates depend upon commercial and competitive conditions. The volume and character of traffic depends upon the location of the road and the degree of success which has attended the efforts of the company to develop the resources of the country tributary to its railroad.

#### IV.

There is no recognized basis for apportioning the value of the property used between the several branches of the service.

#### V.

The value of the property used in any branch of the service (even if it could be ascertained upon a recognized basis), multi-

plied by the reasonable percentage of profit, is no criterion of the reasonableness of rates on such branch.

#### VI.

Railroad companies are not entitled to a reasonable return on the value of the property used. They are entitled only to what they can earn, be it much or little, by charging rates that are just, reasonable, and undiscriminatory, the reasonableness of such rates being determined by commercial and competitive conditions and the value of the service to the shipper and to the railroad.

#### VII.

Rates adjusted on the value of the service principle, intelligently and fairly applied, are just alike to the railroad and to the shipper.

#### VIII.

The reasonableness of rates can only be determined by the facts bearing upon each particular case. Reasonableness of revenue is a legal fiction.

#### IX.

The profits of railroad companies, resulting from the volume of business they have helped to create and such reasonable rates as commercial and competitive conditions enable it to charge cannot be restricted to the usual rate of interest without doing injustice to the owners of such properties.

#### X.

Unreasonable rates can be readily corrected under existing laws. The Courts, State Commissions, and Interstate Commerce Commission have ample power to make such corrections.

#### XI.

Railroad companies have not the power to charge extortionate rates, nor is it to their interest to do so. Such rates would kill their business.

## XII.

The underlying error of the demand for valuation of railroad property is the assumption that railroads have the power to fix their rates and that they exercise it so as to produce an unreasonable return on the capital invested.

## XIII.

The statistics published by the Interstate Commerce Commission and by Poor's Manual for 1905, show that American railroads, with few exceptions, have not earned a reasonable return on the capital invested.

## XIV.

These statistics also show that the increase of capitalization has been invariably accompanied by a reduction in passenger and freight rates.

## XV.

Justice to the railroads and to their customers requires that the reasonableness of rates on intrastate traffic be determined by the same method that the Interstate Commerce Commission and the Federal Courts employ in ascertaining the reasonableness of rates on interstate traffic; that is to say, upon the facts surrounding each particular case.

The above conclusions are based mainly on my own experience. It may not be amiss to state that I have been continuously in the service of American railroads for sixty years.

Yours very respectfully,

(Signed) HENRY FINK.

## APPENDIX

Extracts from Monograph Written by Henry  
Fink, in 1907, on the "Valuation of  
Railroad Properties as a Basis  
for Regulation of Rates."

"OVER-CAPITALIZATION."

"VALUATION OF RAILROAD PROPERTY."

## OVER-CAPITALIZATION.

BY HENRY FINK.

Chairman of the Board: Norfolk & Western.

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The term capitalization is generally applied to the capital shares, and bonded debt combined, although the latter constitutes a debt, and is in no sense part of the capital of a railroad company. The reason for this misapplication of terms probably is that very few American railroads were built from the proceeds of the sale of their capital shares. Nearly all of the companies were obliged to use their credit and borrow sufficient money for the completion of their roads, and to issue bonds of various kinds as security for their debts. It is presumed that the money so borrowed has been honestly invested in the railroads, and is represented by adequate property, and that therefore the bonded debt may be considered a part of capitalization. The term over-capitalization may be defined in several ways. For example:

1. When a railroad corporation has not received an equivalent in cash or in property, for the par value of its stocks and bonds, the corporation may be said to be over-capitalized to the extent of the difference between such par value and the money realized.

2. When the par value of the stock and bonds issued exceeds the fair value of the property represented by such issues.

3. If the earning capacity is the true measure of the value of a railroad (as I believe it is), then a railroad is over-capitalized when for any reason it is unable to earn its fixed charges, and a reasonable dividend on its capital shares.

According to the last definition, the capitalization of a road may be very low, and still it may be over-capitalized, because of insufficient earnings.

When a railroad is unable to earn the interest on its bonded debt, the evil of over-capitalization corrects itself, through bankruptcy and reorganization.

Whatever definition may be adopted, it is necessary to discriminate between over-capitalization that is legitimate because unavoidable and harmless, and over-capitalization that is due to fraud and trickery of dishonest promoters, and which carries in its train many material and moral evils.

Over-capitalization in the sense that the par value of the stock and bonds has not been realized is obviously unavoidable, because railroad



companies which have to borrow money must necessarily pay what the money is worth at the time they borrow it; and they must offer inducements to investors by agreeing to pay a high rate of interest, or by selling their securities below their par value. The amount of such discounts must vary with the varying credits of the borrowing companies. It follows that except in cases where the credit of a railroad is exceptionally high, there must always be some "water" in stocks and bonds. The only way to prevent this would be to prohibit railroads from selling their securities below par. This, of course, is impracticable.

The history of the early days of American railroads furnishes a striking illustration of the fact that capitalization has no direct relation to railroad rates. In the early days railroad companies generally received par value for their stocks, and they issued no bonds until a basis of credit had been created by the construction of a part of their roads from the proceeds of the sale of the stock. In many cases these roads were built in anticipation of the future needs of the people. The traffic which was to support them had to be created. The charges for transportation were very high, but the people were glad to avail themselves of the improved facilities, and did demur so long as the charges did not equal or exceed those by wagon or river and canal transportation. The charters in many cases prescribed maximum rates, which, however, were much greater than the traffic could bear.\*

Section 1242 of the Virginia Code of 1887 provides:

"When the net profits of any company heretofore or hereafter incorporated, which may be governed by this chapter, shall be such that, but for this section, dividends might be declared out of the said profits exceeding the rate of fifteen per centum per annum on the capital stock invested, laws may be passed for reducing the toll of the company. But no law shall reduce the tolls so as to prevent dividends of 15 per centum per annum, within 30 years from the time the first dividend of profits of the said company was declared, or so as to prevent dividends of 12 per centum per annum after the said 30 years and before 50 years from the same time, or so as to prevent dividends of 10 per centum per annum after the said 50 years."

As state and federal railroad commissions were unknown in those days, one might suppose that the railroads would have charged such rates as might have given them a reasonable return on a fair value of the property used. But experience proved otherwise. Advances in rates resulted in diminished traffic and earnings; and many of the roads were forced into bankruptcy. In these cases the capitalization was low, but nevertheless the roads were over-capitalized; and as a result, the capital invested in them was sunk in whole or in part, except in cases where the owners were able to invest additional capital for the extension of their road to regions which afforded more traffic. In such cases over-capitalization was corrected by an increase of the capital.

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\*A Kentucky charter of 1829 fixes a maximum rate of  $3\frac{1}{4}$  mills per 100 pounds for a distance of 20 miles or less; 3 mills for over 20 miles and under 60 miles, and  $2\frac{1}{4}$  mills for 60 and over 60 miles.

A Maryland charter of 1831 fixes a maximum rate of 3 cents per ton per mile.

A Georgia charter of 1827 fixes a maximum of 25 cents per 100 pounds for heavy articles and 10 cents per cubic foot for light articles.

At another period we find that over-capitalization by the issue of stock on which par value was not realized became the recognized method of raising capital for the construction of railroads through the undeveloped country of the West and Middle West. In some cases stock was given as a bonus to the purchasers of the company's bonds. This was necessary in order to assure capitalists who had seen one railroad after another go into bankruptcy, an ample reward for their risks.

At one time it was a common practice to issue stock to contractors in part payment for constructing railroads. Of course in such cases the par value of the stock was not realized.

It is often asserted that the payment of stock dividends contributes to over-capitalization or stock-watering. This is true only when such payments are based upon false accounting, or other deceptive methods. In such cases the practice must be classed with fraudulent over-capitalization. When based upon an honest accounting, the stock dividend shares represent earnings which were expended on the property, instead of being divided in cash among the shareholders.

It is frequently pointed out that the issue of stocks and bonds in payment for railroads which have passed through bankruptcy, and are reorganized, results in over-capitalization. This may be and often is the case; but it does not follow that such over-capitalization is illegitimate or harmful. One of the main objects in reorganizing a railroad company is to cut down its fixed charges so as to bring them within the earning capacity of the road during periods of lowest business depression. In order to attain this object owners of certain mortgage bonds of the old company agree to accept bonds of the new company, but to a less amount as to principal, and frequently at a reduced rate of interest. In consideration of this sacrifice of capital and interest, they receive certain stocks upon which dividends are payable only when a revival of business and the growth of the traffic enable the new company to earn such dividends. And stocks so issued are in no sense fictitious. They represent actual values, and are drafts, for value received, on more prosperous times. In many cases such drafts have been honored. A good illustration of this is afforded by the result of the second reorganization of the Norfolk & Western Railroad Company in 1896.

After the first reorganization in 1881, millions of dollars were expended in improving and extending the road, and in furnishing increased transportation facilities to the public. Private persons and corporations also invested millions in manufacturing and mining enterprises along the line of the road. But, unfortunately, the development of the country did not keep pace with these investments. Many of the enterprises came to grief; and the railroad company, being unable to earn its fixed charges, was put into the hands of receivers for the second time, in 1895.

At the reorganization in 1896 the new company issued \$62,500,000 of first mortgage 4 per cent. bonds, to be used as follows:



A. \$23,322,675 to be used to provide for the disturbed bonds of the old company and to carry out the plan.

B. \$25,986,889 to be reserved for the purpose of taking up or paying the undisturbed bonds at their maturity.

C. \$3,500,000 to be reserved or deposited in trust, subject to suitable restrictions, for the purpose of taking up or paying any existing obligations which shall not be taken up or paid out of funds received by the committee, and for other necessary purposes of the new company.

D. \$9,690,436 to be reserved for the construction or acquisition of side-tracks, second-tracks, branches, and equipment, and for other improvements and additions to the property covered by the first consolidated mortgage, and for other requirements of the new company; but such bonds are to be issued only subject to suitable restrictions to be prescribed in the mortgage securing the same, and at a rate not exceeding \$1,000,000 for each fiscal year after June 30, 1896 (the first fiscal year being that ending June 30, 1897); it being understood that any portion of such \$1,000,000 of bonds remaining unissued in any one fiscal year may be added to the amount which may be issued in subsequent years.

It also issued \$23,000,000 of 4 per cent. non-cumulative adjustment preferred stock—shares of \$100 each—and \$66,000,000 of common stock—shares of \$100 each. The shareholders of the common stock of the old company were required to pay an assessment of \$12.50 per share for participating in the reorganization and retaining their interest in the road.

The following table will show the scaling down of the disturbed securities and the issues and percentage of stock to such security holders as compensation:

DISTURBED SECURITIES.	Per cent. received in.		
	Cash.	1st. Cons. Mtg. bonds.	Pf. stock.
Adjustment mortgage 7 per cent. bonds.....	7	130	20
100-year mortgage bonds.....		62½	75
Maryland & Washington dividend bonds.....		70	67½
Clinch Valley dividend bonds.....		50	70
Equipment mortgage bonds of 1888.....		100	48
5 per cent. debentures of 1892.....			100
Roanoke & Southern Railway Co. bonds.....		55	65
Lynchburg & Durham Railroad Co.....		35	65
N. & W. Railroad common stock.....			*75
N. & W. R. R. pf. stock, on payment of \$12.50 per share deposited.....			112½
Roanoke & Southern Ry. stock, on payment of \$12.50 per share deposited.....			75
Lynchburg & Durham R. R. Co. stock, on payment of \$12.50 per share deposited.....			75
*Common stock above 75.			

There can be no doubt that in 1896 the road was largely over-capitalized, in the sense that the earnings were insufficient to pay fixed charges and dividends on the capital shares. No one dreamed that any dividends could be paid on the common stock for many years; hence it sold in the market at very little above, and at times below, the \$12.50 per share of cash assessments. But owing to the revival of business and the ensuing unexampled prosperity of the country and the great development of the resources of the region traversed by the road, the company earned and was able to pay a dividend of 1 per cent. on its adjustments preferred stock in November, 1897, a like dividend in February, 1898, and a 2 per cent. dividend in August, 1898, since which time semi-annual dividends have been paid regularly on this stock. In June and December, 1901, and June, 1902, dividends of 1 per cent. were paid on the common stock. From and including December, 1905, 2 per cent. dividends were paid on it semi-annually until after the June payment of 1906, and since December, 1906, dividend payments have been at the rate of 5 per cent. per annum, the market value of the common stock at times approaching closely to par.

Fraudulent over-capitalization through stock issues which represent no property or values, and made for the purpose of affording greater opportunities for speculation or gambling, and for obtaining or retaining by trickers a controlling interest in the road, or for other illegitimate purposes, cannot be too severely condemned. It is a crime differing only in degree from forgery of stock certificates, and it is frequently accompanied by false reports, dishonest accounting and other misrepresentations and methods of deception. There was a time when these practices obtained to a considerable extent, to the disgrace of the railway management of this country.

Happily, over-capitalization of this sort has become rare. The evil effects resulting from it, though serious, affect share-holders of the railroads concerned more than they do the public. Generally these effects are but temporary, because the operation of economic laws soon results in the correction of the evil. Wall Street can always be relied upon to promptly squeeze out the "water" from such stocks.

While there are many railroads in this country which do not earn an adequate return, even in times of great prosperity, there are few which can be said to be over-capitalized in the bad sense of the term. Certainly the aggregate capitalization of American railroads is below their real value. This has been shown by the history of these railroads and by comparison with the capitalization of railroads in England and on the continent of Europe.

Prof. H. C. Adams, the statistician of the Interstate Commerce Commission, states on Page 34 of Eighteenth Annual Report on the Statistics of Railways in the United States for the year ending *June 30, 1905*, that the aggregate amount of capitalization of all the railroads in the United States was..... \$13,805,258,121

But on Page 55 he says that this amount overstates the capital, as it does not allow for an admittedly proper deduction of amounts of stocks and bonds in other railroads which are owned by the railroads themselves, and on Page 58 he says such amounts were:

Stocks.....	\$2,070,052,108	
Bonds.....	568,100,021	
		<hr/> 2,638,152,129

Leaving the real aggregate capitalization..... \$11,167,105,992

On Page 99 of the report he gives the cost of all the roads in the United

States as.....	\$11,170,458,581	
And of their equipment.....	780,890,368	
		<hr/> 11,951,348,949

Excess of cost over capitalization..... \$784,242,957

It will thus be seen that the capitalization of the railroads of this country is less than their cost by nearly eight hundred million dollars.

And as will be seen from the following figures taken from the Report on Transportation Routes and Systems of the World, issued by the Department of Commerce and Labor at Washington, the capitalization of the European railroads is much in excess of that of the railroads of this country:

#### CAPITAL OR COST, PER MILE OF RAILROADS.

1904	United States.....	\$55,261
1904	Canada.....	60,504
1899	Uruguay.....	52,756
1904	Venezuela.....	70,972
1903	Germany.....	98,443
1903	Austria.....	128,334
1903	Hungary.....	74,045
1903	Belgium (state roads only).....	160,893
1902	France.....	137,601
1903	Switzerland.....	104,969
1904	United Kingdom.....	272,737
1902	Russia.....	78,553
1902	Finland.....	32,189
1904	Norway.....	38,371
1904	Sweden (state railroads).....	44,669
1902	Sweden (private railroads).....	22,006
1902	Italy.....	108,212

The issue of railroad stocks is subject to the regulation of the states which created the corporations through the original charters or by-laws enacted subsequently. For instance, in Virginia the Corporation Commission,

and in New York the Public Utilities Commission, have power to regulate such issues. The constitution of Illinois, adopted in 1870, provided:

"No railroad corporation shall issue any stock or bonds except for money, labor or property actually received and applied for the purposes for which such corporation was created, and all stock dividends and other fictitious increase of capital stock or indebtedness of any corporation shall be null and void."

It is now proposed that the federal government assume the regulation of such matters; and as the commerce clause of the federal constitution, when stretched to its utmost limits, may not prove adequate for the purpose, and in view of the fact that an amendment to the federal constitution involves great difficulties and delays, it has been suggested that the seventh clause of Section 7 of Article 1 of the constitution, in regard to post roads, be utilized, and that by means of a new construction of the constitution the federal government usurp the power reserved by the states. This regulation is not to be confined to railroads, but is to be applied to all "big corporations," whether affected by the public interest or not.

It will be seen from President Roosevelt's speeches that while he is of the opinion that, with the exception of some isolated instances, American railroads are not over-capitalized, he nevertheless recommends that Congress make provision to enable the Interstate Commerce Commission to undertake the physical valuation of each and any road in the country, whenever, in the opinion of the Commission, such valuation of any road would be of value to the Commission in its work. It is not unreasonable to suppose that if the President would carefully investigate the subject, he would find that in view of the obvious fact that the value of railroad properties has no relation to the rates, and cannot be used as a criterion of their reasonableness, such valuation cannot be of any value to the Interstate Commerce Commission in its work. He will also find that the injuries resulting from over-capitalization to the wage-earner and to the public, which is concerned in the rates paid by the shipper, are wholly imaginary. It is true, however, that the Interstate Commerce Commission might favor an official valuation of the railroads, because it would furnish a convenient justification of some of its orders that carriers make radical reductions of individual rates, or of rates on whole classes of business, for so long as the earnings derived from other sources of traffic can be shown to be sufficient to yield the carrier what may be considered a reasonable return on the value of the property as ascertained by the official valuation, it would be impossible for the carrier to appeal to the federal courts for the reversal of such order with any hope of success, no matter how unreasonable the reduced rates ordered by the Commission might be in and of themselves.

It is obvious that the owners of the railroads would have no redress when an order of the Commission deprived them of a reasonable compensation for services rendered, and that they could only appeal to the courts for protection in cases of actual confiscation of their property.

The President's suggestion that the clause of the Constitution granting the national government power to establish post roads, by necessary implication confers upon the federal government control over railroads, whether their business is intrastate or interstate, derives importance from the great weight his opinions have with the people and with their representatives in Congress of both political parties.

The question of effecting changes in the Constitution by construction, instead of by amendment, has already been discussed by able members of the legal profession. Our concern not being with legal questions, but with the probable practical effect of proposed measures for the regulation of railroad rates, we will briefly consider whether any additional legislation having for its purpose the enlargement of the powers of the federal government, is needful, if it were found to be practicable.

It cannot be denied that a dual control of railroad rates by the states that created these corporations and by the federal government, which obtains control through the commerce clause of the Constitution, has its serious disadvantages. In many cases the rates between points within a state necessarily affect the interstate rates, and very frequently the latter are based upon the former; hence it may be said that in such cases the state and the federal government exercise jurisdiction over the same subject matter. The fact that in the past no serious difficulties have been experienced from this dual control, is due in part to the success which has attended the efforts of traffic men to adjust rates in compliance with the requirements both of state and federal commissions, but more particularly to the conservatism that has marked the action of the state legislatures and state railroad commissions. Unfortunately many of the states have in recent times departed from that conservative policy. They have not only ordered radical reductions in rates on intrastate traffic, especially in the passenger rates, but in some cases are enforcing by legislation or through state railroad commissions certain rules and regulations in the conduct of intrastate business that must affect the interstate traffic of the roads.

Much of the legislation referred to is ill-advised, and in its results must prove detrimental to the material interests of the states that enacted it. The writer hopes and believes that when the people begin to feel the injurious effects, as they must, sooner or later, we will see such laws as are fraught with the greatest mischief amended or abolished. In the meantime it is, in the opinion of the writer, not needful or advisable for Congress to enlarge the powers of the government so as to give it jurisdiction over intrastate traffic. This opinion is based upon the fact that the government, under the Constitution and existing laws, has already ample power to regulate rates on interstate traffic, even though intrastate rates may be involved in such regulation. The commerce clause was adopted by the framers of the federal Constitution for the avowed purpose of preventing the states from obstructing traffic between the states and with foreign countries. A law passed by Congress under that clause is



the supreme law of the land, and a violation of such law by a state, whether directly or through the exercise of its power over intrastate traffic, is unconstitutional, and will be so declared by the Supreme Court of the United States.

In view of recent railroad legislation by states, the management of systems which traverse six or more states, if they had their choice, would naturally elect to serve but one, instead of six or more masters. However, at the present stage of the evolution of railroad regulation, the discussion of the question of transferring the direct control of intrastate traffic to the federal government appears to be purely academic.

The suggestion that the federal government assume the regulation of stock and bond issues, in order to prevent over-capitalization and protect individuals who may desire to invest in railroad securities, involves some interesting questions as to the legitimate sphere of the government's interference, what is to be the limit of such interference with the freedom of the individual, and what human action should remain under the exclusive jurisdiction of the individual.

So far the kind of socialism which proposes to use the power of the government for the regulation, not only of production and consumption but of every detail of life, for the purpose of neutralizing the effects of innate inequality of man, has not found favor in this country. Socialism of this kind is imported. It is foreign to this country, and cannot flourish among a people of practical common sense who habitually pay more attention to facts than to theories based on mere assumption. It is true, however, that occasionally men occupying high positions express opinions on the functions of government which the most advanced socialist might indorse, but these opinions do not meet with general acceptance. Freedom of the individual within the law, that is, limited individualism and equality before the law, are underlying principles of American governments. It may be said that in the sphere of economy the government policy has been one of *laissez faire*. Under this policy the country has grown to be what it is, and it is steadily gaining in power and material prosperity because of the large measure of liberty and the wide scope given to individual energy and skill in the development of its immense resources. It is a historical fact that the opposite policy, that of *fueur de gouverner*, which prevailed in France in the eighteenth century, nearly strangled every branch of French industry, and brought about starvation of the people.

The country is suffering from an excess of railroad regulation. Much of it is ill-considered. In many cases the remedies are worse than the evils they are designed to cure. We have seen that the best remedy for over-capitalization due to insufficiency of earnings to pay fixed charges and return on the capital stock lies in the growth of the volume of the traffic. In such cases a restriction of the issue of stock cannot affect its intrinsic value. Its market value is determined by appraisements made in Wall street, and such appraisements afford a better protection to investors than any government regulations. Indeed it is difficult to understand

how such regulation could give any protection at all, even if it were a function of government to protect individuals against the consequences of their own errors of judgment. That over-capitalization is an evil cannot be denied, but it would seem irrational to shackle commerce and industry and their instruments by an attempt to abolish by legislation an evil which is corrected by operation of economic laws.

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## VALUATION OF RAILROAD PROPERTY.

BY HENRY FINK.

Chairman of the Board, Norfolk & Western.

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No definite basis of valuation having as yet been determined, we will examine as briefly as possible some of the methods which have been suggested for the valuation of railroad property.

By keeping in mind the use that is proposed to be made of this valuation, the reader will be able to judge for himself whether these objects can be accomplished by the proposed methods.

### PHYSICAL VALUATION BASED ON THE ORIGINAL COST OF THE PROPERTIES.

All methods of determining the physical valuation of railroad properties have in common the underlying idea that the terms "cost" and "value," when applied to railroads, are synonymous. By the method we are now considering, the property is divided into its constituent parts, the original cost of each part being determined separately. For example, it is proposed to ascertain the original cost of the right of way, depot grounds, and other real estate, embankments, cuts, tunnels, culverts, bridges, ballast, cross-ties, rails, switches, station buildings, employees' buildings, machine shops, office buildings, telegraph line, machinery, locomotives, passenger cars, freight cars, etc. To the aggregate amount of

this original cost there is to be added the cost of all the property which has been acquired since the road was turned over to the company by the contractors. Whether the condition of the property at the time the valuation is made is to be taken into consideration, and a deduction is to be made for depreciation, the writer does not know. In view of the difficulty, and, in case of the older railroads, the impossibility of ascertaining the original cost, and the cost and value of all the additions that have been made to the property, it is proposed to make a

#### PHYSICAL VALUATION BASED ON COST OF REPRODUCTION.

By this method, the property is also divided into its constituent parts; but the value of each part is ascertained by the cost of reproducing it at prices ruling at the time of the valuation.

For example: Right of way, depot grounds, and other real estate is valued at the prices of adjoining lands; the cost of graduation and masonry is ascertained from the prices per cubic yard for which such work can be done at the time of the valuation. As the quantities and classification of material can rarely be obtained from the original engineering notes, it will be necessary to put engineering parties in the field to survey the railroads, cross-section the cuts and fills, measure the bridges, tunnels, etc. A careful inspection of every part has to be made to determine the amount of depreciation. For it is the cost of reproducing the property in its condition at the time of its valuation which is to be ascertained. As the cost of materials and labor fluctuates, and the railroads have to add constantly to their property in order to furnish adequate facilities for the requirements of the traffic, it follows that what may be a fair valuation of a railroad one year may not be so one or two years later. Hence, it would be necessary to make new valuations from time to time. The proposed method is the same as that adopted since 1902 by the Board of State Tax Commissioners of the State of Michigan for the appraisal of railroad properties for the purpose of taxation.

The following table from Bulletin 21 (on the "Commercial Valuation of Railways Operating Property in the United States, 1904"), issued by the Department of Commerce and Labor at Washington, will give the reader a good idea of this method:

#### SUMMARY OF ALL RAILROADS IN MICHIGAN.

##### MILEAGE.

Main track .....	7,052.35
Second track .....	164.83
Branches .....	730.92
Spurs and sidings .....	2,904.70



# VALUE OF PHYSICAL PROPERTIES.

	Cost of re- production	Present value	Pr. ct. of new
1. Engineering, 4 per cent., items 2-25, inclusive, and 33.....	\$ 5,386,772	\$ 5,386,772	100.0
2. Right of way and station grounds.....	27,745,313	27,745,313	100.0
3. Real estate.....	863,337	863,337	100.0
4. Grading.....	21,699,995	21,693,024	100.0
5. Tunnels.....	1,148,070	1,093,445	95.4
6. Bridges, trestles and culverts.....	8,027,119	6,337,819	78.8
7. Ties (cross and switches).....	11,139,024	6,148,748	53.9
8. Rails.....	28,703,012	21,865,994	76.1
9. Track fastenings.....	3,845,030	2,987,982	77.6
10. Frogs, switches and crossings.....	1,469,721	1,040,120	71.0
11. Ballast.....	3,723,556	3,723,556	100.0
12. Track laying and surfacing.....	6,355,638	6,400,972	97.5
13. Fencing.....	2,763,595	1,627,790	58.8
14. Crossing, cattle guards and signs.....	607,542	428,474	70.4
15. Interlocking and signal apparatus.....	501,683	448,686	89.3
16. Telegraph (30 telephones).....	258,985	134,797	52.0
17. Station buildings and fixtures.....	4,108,736	3,111,103	75.8
18. Shops, roundhouses and turntables.....	2,157,228	1,467,569	68.2
19. Shop machinery and tools.....	1,107,910	882,634	79.7
20. Water stations.....	725,670	522,135	72.0
21. Fuel stations.....	303,289	201,461	66.2
22. Grain elevators.....	1,336,794	1,009,043	75.0
23. Warehouses.....	258,646	183,910	71.3
24. Docks and wharves.....	5,531,919	3,831,934	69.4
25. Miscellaneous structures.....	1,234,345	856,253	69.4
26. Locomotives.....	9,021,517	5,092,053	66.4
27. Passenger equipment.....	3,197,473	2,277,271	71.2
28. Freight equipment.....	19,734,246	13,690,587	69.4
29. Miscellaneous equipment.....	702,940	423,689	60.3
31. Ferries and steamships.....	1,725,300	1,095,500	63.5
32. Electric plants.....	93,061	69,898	96.8
33. Terminals.....			
34. Legal expenses, 0.5 per cent., Items 2 to 25 inclusive, and 33.....	673,349	673,349	100.0
35. Interest, 3 per cent., Items 1 to 34, inclusive.....	5,290,549	5,290,549	100.0
36. Miscellaneous expenses: Organization, 1.5 per cent.....	2,645,277	2,645,277	100.0
Contingencies, 10 per cent.....	18,428,759	15,127,110	62.3
Total cost of construction and equipment.....	\$202,716,252	\$166,398,156	81.4
*Value of non-physical properties.....		35,814,043	
Total value of physical and non-physical properties.....		\$202,212,199	
37. Stores and supplies.....	1,474,829	1,474,829	82.2

\*Figures furnished by Prof. Adams.

This inventory method is supplemented by a consideration of the earning capacity of the roads, and in the same Bulletin will be found an interesting letter from Prof. Henry C. Adams, addressed to the Michigan Board of State Tax Commissioners, in which he recommends a rule for the appraisal of non-physical elements of corporate property.

## PHYSICAL VALUATION, SUPPLEMENTED BY THE PERSONAL EQUATION, OR METHOD ADOPTED BY THE VIRGINIA COMMISSION.

We have seen that in fixing the maximum value, per mile, of Virginia railroads, the commission was largely influenced by the property principle by direct assessment—which is essentially a physical valuation principle. The commission says in respect to valuation matters that it knows no better

or more reliable method than to give due and proper consideration and weight to the following matters, among others:

"1. The original cost of the property, so far as it is shown.

"2. The amount of the capital and bonded debt of the company applicable to the property in this state.

"3. The market value of such stock and bonds.

"4. The cost of reproducing the property anew so far as it is shown.

"5. The cost of reproducing the property in its present condition so far as it is shown.

"6. The properly assessed value of the property for purposes of taxation.

"7. The personal knowledge of the property by the commission."

It then proceeds to say that "no one of these considerations should control, but due weight should be given to each." But it immediately afterward observes that "the original cost of a railroad and its equipment is often unascertainable, and it is wholly impracticable to ascertain the cost of reproduction—either new or in its present condition," and that "the most unreliable and misleading of all the foregoing considerations is the amount or present market value of the stock and bonds of the road."

This would seem to reduce the seven matters to be considered to only two; that is, the 6th, or the properly assessed value of the property for purposes of taxation, and the 7th, the personal knowledge of the property by the commission.

It should not require any argument to show that the methods above described cannot result in a fair valuation of property for any purpose, because the principal characteristic of a purely physical valuation is gross inequality. For example: The cost of grading, masonry, bridges, tunnels, etc., of a comparatively new railroad built through a mountainous country may be five times greater than that of an older road built through a valley or on a plain, while the value as a railroad, measured by its efficiency to serve the public and the volume and character of its business, may not be one-tenth part as great as that of the road built in the valley or on the plain.

The underlying error of the method is that cost represents value. The cost of preparing a roadbed for the track adds nothing to the value as a railroad, no matter what its cost may have been. The advocates of a physical valuation impute value to the cost of things which contribute little or nothing to the real value as a railroad, and they disregard the things which have real value; that is, the efficiency as an instrument of commerce, and the degree of success in building up the country and developing its traffic as measured by its earning capacity.

In view of these facts, and others which might be mentioned, it is impossible to escape the conclusion that a physical valuation is irrational in principle, and impracticable of application.

## VALUATION BASED ON MARKET VALUE OF BONDS AND STOCKS.

Unlike the physical valuation, this method has a rational basis. The value of a railroad depends on its net earning capacity, and the market value of its securities under normal conditions reflect such earnings, as well as the physical condition of the property and the degree of efficiency with which it is able to serve its purpose and afford safe, regular, expeditious and cheap means of communication between sections of the country, and especially the volume and character of the traffic it has been able to develop in the course of years.

Wall Street is a good appraiser of values. The market values of stock represent the best judgment of thousands of men—investors and speculators—who make it a business to study railroad problems and to keep themselves constantly informed of all the conditions which influence or affect the earning capacity of the roads. It is true that prices of stock fluctuate—at times violently—but this difficulty can be overcome in a measure by using the average prices for long periods, such periods being judiciously selected with reference to normal conditions of the market. No doubt this method would give good results when applied to railroads which have been in operation for many years, in old and well-developed sections of the country, for generally the stocks of such roads are bought largely for investment. Their prices do not fluctuate materially, and owing to the enhanced value of real estate and terminals, the value of the property is generally greater than the aggregate market value of the securities representing it. But it is different with comparatively new roads, which, to a great extent, have to develop the business which is to support them, and also with the newly reorganized companies. In these cases the method of valuation based upon the market value of the stocks and bonds would not give satisfactory results.

## THE TRUE MEASURE OF VALUE OF A RAILROAD IS ITS EARNING CAPACITY.

Corporations build and operate railroads for the purpose of earning dividends for their stockholders (if they can) by selling transportation to the public. The value of a railroad depends upon the degree of efficiency with which it can serve its customers. This efficiency is reflected in their earning capacity and is affected by various conditions and circumstances—some of which may be enumerated as follows:

1. Location and construction with reference to sources of traffic and economy of operation.
2. Character and amount of transportation facilities, terminals, etc.
3. Degree of success of the efforts to develop the resources of the country and in locating commercial, manufacturing, mining, and other industries which afford traffic.
4. Volume and character of the traffic.

5. Conditions affecting the value of the service; that is, the rates of transportation which can be charged to the customers.

6. Competition with other railroads, water lines, and between markets.

7. Good-will of the customers, and good feeling generally of the people.

8. Skill, industry, and honesty in the financial and physical operation of the road.

Some of these conditions affect the earning power more than others; but all of them are reflected in the net earnings of a road. Therefore, the net earnings are the true measure of the value of a railroad. The truth of this cannot be successfully controverted.\*

It is manifest that the earning capacity cannot be considered by the advocates of valuation, because, as the Kentucky Commission observes in respect to the apportionment of the annual charge for valuation:

"Certainly neither gross earnings nor net earnings can be a satisfactory basis of apportionment of these charges for this purpose, particularly where the purpose of the apportionment is to determine the propriety of the rates from which these gross earnings and net earnings result. In this case the earnings result from the rates in question. This annual charge for valuation is in a sense part of the carrier's cost, and to attempt to justify the apportionment of costs by the earnings resulting from rates, and then to justify the rates by the apportionment of costs based on the earnings resulting from the rates, would clearly be reasoning in a circle."

The commission's reasoning is of course correct from its standpoint, but it does not prove that earning capacity is not a good measure of value of railroads. It merely proves the fallacy of the method of ascertaining the reasonableness of rates from a valuation of the property used.

VALUATION IS NOT NEEDED, BECAUSE RAILROADS CANNOT AND DO  
NOT CHARGE EXORBITANT RATES.

One object of the valuation is to prevent railroads from charging exorbitant rates. The remedy is not needed because the evil does not exist. Existing state and federal laws regulating railroad charges, if properly enforced, afford ample protection to the shipper. But even if this were not so, railroad companies cannot charge exorbitant rates, because they would kill their business and put themselves into bankruptcy.

No private persons or corporations that are "affected with public interests" are so much affected by public prejudices that seek, and too often find expression, in ill-considered legislation, as the railroads are. For every ill, real or imaginary, a special legislative nostrum is prescribed. Thousands of railroad bills are introduced in Congress and in state legislatures. The remedies proposed are more numerous than the patent medicines which are advertised as panaceas for the ills to which the natural person is subject. Before the meeting of the last Congress it was earnestly demanded that, in order to cure the evil of rebating, the Interstate Commerce Commission should be clothed with the rate-making power. The pointing out of the obvious fact that a commission-made rate can be rebated as easily as a rate made by the railroads made no impression upon the persons who demanded such legislation. Nor did the fact that the Elkins

Act had been on the statute books for some years, which law, if it had been properly enforced, would have stopped rebating long ago. At a recent session of Congress, Senator LaFollette introduced a bill providing for the official valuation of all the railroads in this country. This bill, however, did not receive the approval of the Senate Committee on Interstate Commerce. Mr. Bryan strongly advocates the valuation of railroad properties by the Interstate Commerce Commission and by the various state railroad commissions. As we have seen, President Roosevelt also advocates the valuation of the railroads by the Interstate Commerce Commission. The wild cry of "over-capitalization"\* is raised in every section of the country and the physical valuation of railroad property is demanded.

To make a valuation of all the railroads would require years of labor and the expenditure of several millions of dollars. Owing to rapidly changing conditions, a new valuation would be needed before the preceding one could be completed. The question arises: what good would these valuations do? What do their advocates expect to accomplish?

One object is said to be the correction of the evil of exorbitant rates. As stated above, this remedy is not needed because the evil does not exist. It has been shown, repeatedly that while the passenger rates on a certain class are somewhat higher in this country than in some of the more densely populated countries in Europe, the American freight rates are the lowest in the world.

A conclusive answer to the charge that rates have been extortionate in the past can be found in the report of the Interstate Commerce Commission to the Senate Committee on Interstate Commerce in reply to a resolution of the Senate, January 16, 1906. This report shows the work of the commission in respect to complaints, hearings, and decisions of the courts as to exorbitant and unreasonable rates, etc. It appears by an extract from this report made by Joseph Nimmo, Jr., former Chief of the Bureau of Statistics in the Treasury Department, and a well-known writer on economics, that only 15 cases involving exorbitant rates were decided by the courts from April 5, 1887, to March 1, 1905, and that only three of these cases were sustained by the courts, or on an average one case of exorbitant rates during each six years of the life of the commission up to March, 1905.

From a statement made by Walker D. Hines, in his testimony before the Senate Committee, it appears that from January 1, 1900, to January 1, 1905, the commission issued 13 orders in cases of unreasonably high rates, of which 10 were obeyed by the carriers, two were not obeyed, and one was not sustained by the court.

The Hon. Martin A. Knapp, Chairman of the Interstate Commerce Commission, declared several years ago that exorbitant rates were practically obsolete.

An inspection of the following table will show that the freight rates of American railroads have steadily and materially decreased since 1882:



Year.	Mileage operated.	Tons hauled.	Tons hauled one mile.	Av. rate per ton per mile.
1882.....	104,971	360,490,375	39,302,209,249	1.236 cents.
1883.....	110,414	400,453,439	44,064,923,445	1.236 "
1884.....	115,704	399,074,749	44,725,207,677	1.124 "
1885.....	123,320	437,040,099	49,151,894,469	1.057 "
1886.....	125,185	452,245,254	52,802,070,529	1.042 "
1887.....	137,028	552,074,752	61,561,069,996	1.034 "
1888.....	145,387	590,857,353	65,423,005,985	.977 "
1889.....	157,758	539,639,583	68,727,223,146	.922 "
1890.....	163,597	636,541,617	76,207,047,298	.941 "
1891.....	168,402	675,608,323	81,073,784,121	.895 "
1892.....	171,563	706,555,471	88,241,050,225	.898 "
1893.....	176,461	745,119,482	93,588,111,833	.878 "
1894.....	178,708	638,186,553	80,335,104,702	.860 "
1895.....	180,657	696,761,171	85,227,515,891	.839 "
1896.....	182,776	765,891,385	95,328,360,278	.806 "
1897.....	184,428	741,705,946	95,139,022,225	.798 "
1898.....	186,396	879,006,307	114,077,576,305	.733 "
1899.....	189,294	959,763,583	123,667,257,153	.724 "
1900.....	193,343	1,101,680,238	141,599,157,270	.729 "
1901.....	197,237	1,089,226,440	147,077,136,040	.750 "
1902.....	202,471	1,200,315,787	157,289,370,053	.757 "
1903.....	207,977	1,304,394,323	173,221,278,993	.763 "
1904.....	212,577	1,309,899,165	174,522,089,577	.780 "
1905.....	217,017	1,427,731,905	186,463,109,510	.766 "

(The above figures, 1882 to 1888, inclusive, are from Poor's Manual for 1890. The figures, 1889 to 1905, inclusive, are from the annual Statistics of Railways in the United States, issued by the Interstate Commerce Commission.)

\*See President Roosevelt's Indianapolis speech.

It will be seen that during the 23 years from 1882 to 1905, the average rate per ton per mile decreased from 1.236 cents to .766 cents, or 470, or over 38 per cent. While the average rates per ton per mile do not show actual reductions in individual rates or classes, because of the varying proportions of low-rate freights, such material reductions as have been made are necessarily reflected in the average rates.

The Interstate Commerce Commission's "Forty Years' Review of Changes in Freight Tariffs" contain over 100 tables showing the great reductions that have been made in individual rates both competitive and local.

#### WHAT IS A REASONABLE RETURN ON THE PROPERTY USED?

That railroad companies are entitled to a reasonable return on a fair value of the property used is but another way of saying that every laborer is worthy of his hire. The compensation of the laborer, be he one who labors with his hands, or a professional man, is determined by the value of his services to his employer.

The services of railroad corporations have a distinctive character, because they render three separate services to the public for which they make only one charge, viz.:

1. As proprietors of the railroad.
2. As transporters or common carriers.
3. As warehousemen.

The early railroad charters in England and in this country contemplated that the railroad companies furnish the roadway and throw it open

as a highway for the use of the public, charging tolls for such use in the same manner in which canals and turnpikes did. If this idea could have been carried out it would have greatly simplified the matter of reasonableness of railroad charges. No one could object to paying the proprietary company such reasonable toll as might enable it to keep the road in a safe condition, and to earn a fair profit on the investment; and as this kind of property is exposed to dangers from the elements and deteriorates rapidly, no reasonable person would limit this fair return to the ordinary legal interest.

If transportation were furnished by a separate company, it would be less difficult to determine the value of the services, and a reasonable return on the capital invested. But in that case the extra-hazardous nature of such investment should also be taken into consideration in determining what is such reasonable return.

It is probable that if railroad accounts were kept more in detail with the view of ascertaining, with a closer approach to accuracy, all the factors which affect rates of transportation, the difficulties of ascertaining the reasonableness of rates under the varying conditions of performing the service would be minimized. At all events, prevailing misapprehensions on the subject might be more easily corrected.\*

It has been pointed out frequently that the existing confusion in the minds of the people on the subject of railroad tariffs arises from the fact that people do not bear in mind that railroad charges are made up of three distinct services, and that a single measure cannot be applied to them.

There are hardly any two railroads in this country which were built or are operated under the same, or even similar circumstances and conditions. Therefore, a fixed rate of profit, or an inflexible rule, applied to all railroads, would result in injustice and unjust discrimination.

There is a great diversity in the earning capacity of different railroads—in their location, construction, gradients, alinement, density of traffic, and other important factors determining the net earnings of railroads. These factors vary within wide limits. What would be a fair return to the owners of one railroad may not be to those of another railroad, whose volume and character of traffic is materially different. Moreover, the earning capacity of railroads varies within wide limits during different periods. Hence, what may be a reasonable return during times of great

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\*The Hepburn Act provides that the Interstate Commerce Commission may prescribe the forms of any and all accounts, records and memoranda to be kept by carriers, including the accounts, records and memoranda of the movement of traffic, as well as the receipts and expenditures of moneys. This provision of such Act prohibits under heavy penalties (of not less than \$1,000 nor more than \$5,000, or imprisonment for a term of not less than one year nor more than three years, or both such fine and imprisonment) keeping any other accounts, records or memoranda than those prescribed or approved by the Commission.

While the uniformity of railroad accounts is very desirable, the unwisdom of prohibiting railroad companies from keeping ancillary accounts is apparent from the fact that the conditions as to operation and traffic are not the same on any two roads in the country, and information which may be of value to the operating officers of one railroad may be entirely valueless to those of another. It is gratifying to learn that the Interstate Commerce Commission in issuing its orders putting the law into effect has tempered this provision with common sense, by allowing railroad companies, at least until otherwise directed, to keep such ancillary accounts.

prosperity might be wholly inadequate during times of business depression. Therefore, a uniform maximum rate of profit cannot be fixed by law, unless the government guarantees such profit for all time—and this, of course, cannot be done.

May not these considerations account for the fact that the courts have not established a basis for the valuation of railroads, nor fixed a percentage of profit ("reasonable return")? That this percentage cannot be justly restricted to the legal rate of interest is manifest from the fact that owing to the hazardous nature of investments in railroads, they cannot be deemed analogous to investments in commercial, industrial, and other enterprises.

We know from experience that a large portion of the capital invested in railroads in this country has either been unproductive for a number of years or has proved a total loss. The traffic of railroads is fluctuating. There are long periods of depression of business, when rates have to be reduced in order to enable shippers to send their commodities to the markets, and when many railroads can barely earn their interest charges, and the stockholders can receive no dividends. It would therefore be unfair to confine shareholders to a fixed rate of profit when a revival of business enables the company to earn more than the established maximum.

Railroads cannot suspend operations during times of business depression, nor transfer their plants to other points, as manufacturers can do. Their operation is continuous; and as a large part of their operating expenses have to be incurred anyhow, regardless of the volume of business, they cannot materially reduce their operating expenses when the traffic diminishes.

Their properties are exposed to great dangers from the elements. Cloudbursts in the mountains and swollen streams frequently destroy hundreds of thousands and even millions of dollars worth of property, and necessitate a suspension of operations for days, weeks, and even months.

Railroad properties depreciate very rapidly. Some portions are from time to time rendered of little or even no value by the revision of grades and alinement, by the adoption of modern improvements in machinery and safety appliances, etc. Railroads sustain heavy losses from excessive awards of damages in cases of accidents, many of which are unavoidable so long as the human equation enters into the operation of railroads. The construction of parallel lines may at any time materially affect the earning capacity of a road. And not the least of the dangers to which railroads are exposed is ill-considered legislation by states and the federal government, at times when the waves of popular prejudices sweep over the land.

Capital is keenly alive to these dangers. It may be asked, who would have invested in American railroad securities if the rate of interest had been confined to the legal rates in the several states? And who is likely to furnish in the future the capital necessary to build new roads and to enlarge transportation facilities now so heavily overtaxed, if the returns on the capital is to be restricted? There are many other opportunities to earn the legal interest, or more, where ample security can be obtained for



the regular payment of interest, as well as of the principal. Capital invested in hazardous enterprises must necessarily receive a large rate of profit as a reward for the risk. Investments in railroads are in a measure speculative. Investors expect to receive not only a reasonable rate of interest, but also a share of the advantages which flow from the growth of the country and from the skill and industry of the management. Why deny them the fruits of their skill and industry in the management of the property, or deprive them of an increment in the value of the property due to the development of the country?

#### RAILROAD CAPITALIZATION AND RETURN THEREON.

A suggestive comparison of freight and passenger rates, and the return on stocks and bonds during the past twenty-three years is brought forth in the following table:

Year.	Average rate		Per mile, cts.		Earnings per mile of road in operation		Per-centage of exp. to earnings.
	Per cent. Interest.	Dividends.	Per ton.	Per pass.	Gross.	Net.	
1883.....	4.94	2.76	1.224	2.422	\$7,405	\$2,679	63.82
1884.....	4.82	2.50	1.124	2.356	6,663	2,318	65.22
1885.....	4.97	2.00	1.057	2.199	6,209	2,163	65.17
1886.....	4.86	2.02	1.042	2.194	6,570	2,376	63.83
1887.....	4.86	2.17	1.034	2.276	6,799	2,418	64.44
1888.....	4.48	1.80	0.977	2.246	6,540	2,045	68.72
1889.....	4.53	1.79	0.970	2.169	6,446	2,066	67.95
1890.....	4.44	1.82	0.927	2.174	6,875	2,166	68.50
1891.....	4.41	1.87	0.929	2.184	6,851	2,135	68.83
1892.....	4.25	1.93	0.941	2.168	6,852	2,068	69.82
1893.....	4.31	1.88	0.893	2.072	6,963	2,069	70.29
1894.....	4.19	1.66	0.864	2.025	6,054	1,803	70.22
1895.....	4.24	1.58	0.839	2.069	6,097	1,804	70.41
1896.....	4.45	1.52	0.821	2.032	6,233	1,840	70.43
1897.....	4.24	1.51	0.797	2.029	6,228	1,884	69.74
1898.....	4.21	1.71	0.758	1.994	6,771	2,111	68.16
1899.....	4.26	1.92	0.726	2.002	7,161	2,272	68.27
1900.....	4.27	2.44	0.746	2.031	7,826	2,519	68.93
1901.....	4.24	2.65	0.756	2.028	8,270	2,668	67.73
1902.....	4.10	2.97	0.764	2.012	8,696	2,830	67.45
1903.....	4.17	3.03	0.781	2.052	9,301	2,887	68.96
1904.....	4.01	3.31	0.787	2.053	9,248	2,989	67.68
1905.....	3.79	3.27	0.789	2.030	9,643	3,135	67.49

It will be seen that the highest average rate of dividend was 3.31 per cent. in 1904, and the lowest 1.51 per cent. in 1897. The two tables also furnish conclusive refutation of the theory that capitalization has any relation to rates and that increased capitalization must result in an increase of rates. It will be seen that the capitalization, including stock and bonded debt, increased from \$5,402,038,257 in 1880 to \$14,563,199,931 in 1905, or 170 per cent., and that during the same period the average rate per ton per mile decreased from 1.224 cents to 0.789 cents, or 35 per cent., and that the passenger rates decreased from 2.422 cents per passenger per mile in 1880 to 2.030 cents, or 16 per cent.

It will also be seen from the accompanying tables taken from the Interstate Commerce Commission "Statistics of Railways in the United States" for the decade ended June 30th, 1905, that during that period of exceptional prosperity, shareholders, with few exceptions, did not receive a reasonable return on their investment.

FUNDED DEBT AND TOTAL CAPITAL OF RAILROADS IN THE UNITED STATES.

Year.	Total funded debt.	Bonds.	Miscellaneous obligations.	Income bonds.	Equip- ment trust obligations.	Per cent. of capital.	Per mile of line.	Total Railroad capital.	Per mile of line.
1903. ....	\$7,250,701,070	\$6,024,449,023	\$786,241,442	\$253,707,699	\$186,302,906	52.52	\$34,625	\$13,805,258,121	\$65,923
1904. ....	6,873,225,350	5,746,898,983	723,114,986	229,876,687	173,334,694	52.02	33,429	13,213,124,679	64,265
1903. ....	6,444,431,226	5,426,730,154	640,704,135	234,016,821	142,980,116	51.15	32,317	12,599,990,258	63,186
1902. ....	6,109,981,669	5,213,421,911	564,794,588	242,556,745	89,208,425	50.35	31,371	12,134,182,964	62,301
1901. ....	5,881,580,887	5,048,811,611	545,780,485	218,872,068	68,116,723	50.32	30,963	11,688,147,091	61,531
1900. ....	5,645,455,367	4,900,626,823	464,983,341	219,536,883	60,308,320	49.13	30,210	11,491,034,960	61,490
1899. ....	5,518,943,172	4,731,054,376	485,781,695	260,048,753	42,058,348	50.02	30,286	11,033,954,898	60,556
1898. ....	5,430,285,710	4,640,762,632	486,977,279	262,194,688	40,351,111	50.19	30,289	10,818,554,031	60,343
1897. ....	5,270,365,819	4,539,911,595	430,718,303	259,847,154	39,888,767	49.56	29,340	10,635,008,074	59,620
1896. ....	5,340,338,502	4,517,872,063	457,735,531	314,425,977	50,304,931	50.54	30,126	10,566,865,771	59,610
1895. ....	5,385,495,573	4,641,755,548	445,221,472	242,603,226	55,915,327	52.05	31,048	10,346,754,229	59,650

#### RATE MAKING ON THE BASIS OF VALUATION OF PROPERTY IS IMPRACTICABLE.

The Virginia and Kentucky cases furnish a striking illustration of the impracticability of government rate-making on the basis of valuation of property.

Let us assume, for further illustration, that a railroad commission has to establish freight tariffs for road A, built in a mountainous country, and at a cost of \$50,000 per mile; and, also, for road B, built in a valley or on a plain at a cost of \$25,000 per mile.

We assume further that there are important industrial establishments on both roads, which produce the same articles and ship them to the same markets. A tariff for road A that is 25 per cent. higher than that for road B must be considered as reasonable, both on account of the greater value of the property used, and the probable greater cost of operation. But what would be the result of such tariff? Obviously, road A would have reasonable rates; but road B would get all the competitive freights. The industrial establishments on road A would have to be closed. As the commission could not order road B to advance its rates (such advance might enable that road to earn more than a reasonable return on a fair value of the property used), it must say to road B: the rates we fix for you are maximum rates. You can charge as much less as you please. That would solve the problem; but what would become of the theory of rate-making?

Owing to the interdependence of rates, what is true of roads A and B is equally true of other roads in different sections of the country. Communities that are served by roads of small capitalization would have lower rates than those which are not so fortunate. The result would be unjust discrimination against localities, and hopeless confusion and disaster to commercial enterprises which depend on railroad transportation. Ultimately the roads which have the lowest capitalization would fix the rates for all the other roads in the same section, with which they compete either directly or indirectly, by competition between markets. This might mean bankruptcy to many railroads, unless they could make up for their losses on competitive business by putting heavier burdens on the local or non-competitive traffic.

The theory of rate-making on the basis of valuation of property ought to commend itself to the advocates of government ownership of railroads; for no more effective plan for depreciating the value of railroad securities could be devised. As a basis for rate-making this theory may be characterized as "the sublimity of absurdity," to borrow a phrase which President Roosevelt applied to another matter.

#### VALUE-OF-SERVICE PRINCIPLE.

About forty years ago, a friend of mine, then superintendent of a Virginia railroad, was asked by the chairman of an investigating committee of the Virginia Legislature, "Why does your company charge \$1 per bale of cotton from local station A on your road to the terminal station B?"

He answered promptly, "Because we can get it." A shout of derisive laughter followed, and the chairman added: "Oh! you charge all you can get, do you?"

The newspapers, and even some railroad men, did not fail to cast ridicule upon my friend, and yet he had stated in a few words, probably without being aware of it, the underlying principle of all railroad tariffs, and of the tariffs of tolls that applied to canals and turnpikes hundreds of years before railroads were dreamed of.

It is apparent that under no circumstances can a railroad charge a shipper more than such shipper is able to pay. It does not follow, however, that rates are made on a basis of charging all a shipper can afford to pay. Such a basis would be unfair, because it would deprive the shipper of his equitable share of the value created by the transportation. Hence, the rate would not represent the fair value of the service to the shipper. But the rate must also be fair to the railroad. Hence, it follows that the fair value of the service is determined by what the shipper is able to pay to yield him such profit as he is willing to accept, and what the railroad can afford to render the service for. A railroad and a shipper may be said to be in partnership limited to each particular shipment. The shipper furnishes the article and the railroad the transportation, the profit from each transaction, that is, the earned increment of value created by the service, to be equitably divided between these partners. The first question to be determined is, can the article be transported at all? If the shipper's share of the value created by the service gives him no profit at all, and the railroad's share does not reimburse it for the expense of handling and moving the article, then the service is practically of no value, and the article cannot be transported. For example: If we assume that the increased value of an article by reason of transportation from the point of production (A) to the market (B) would be equivalent to 20 cents per 100 pounds, and the actual outlay of the railroad for handling and moving the article was 22 cents per 100 pounds, then the service is of no practical value, and the article cannot be carried. If, however, the shipper's share yields him such minimum profit as he may be willing to accept, and the railroad's share gives it something more, however little, than the expense of moving and handling the article, then the service is of some value, which may be designated the minimum value, and the article can be transported. The minimum value in such a case fixes the maximum rate that particular article can bear.

For instance: If the increase of value created by the transportation should be equivalent to 30 cents per 100 pounds, and the expense of handling and hauling is 22 cents per 100 pounds, then a rate can be fixed which will give some profit to the shipper, and give to the railroad something over the actual expense of handling and hauling. It follows that the rate must not be higher than the article can bear—the value of the service being determined by the ability to pay. This ability varies within wide limits with different articles, according to their values. For instance:

Silks and dry goods can bear higher rates than pig iron; manufactured goods can generally bear higher rates than the raw materials out of which they are made. Railroads classify their articles in accordance with the rates each article can bear, and for the purpose of so adjusting rates that every article contributes, in addition to the expense of movement, such proportion of the expenses of maintenance of way, track, bridges, buildings, general administration and taxes, and, if practicable, interest on the capital invested, as the value of the service enables each article to contribute.

The underlying principle of railroad classification is discrimination between different classes of freight in accordance with the value of the service and expense of operation. We will now see whether this theory can be applied to the practical work of rate adjustment.

It may be said that a railroad favorably located in respect to the sources of its traffic, and economically built and operated, should yield to its owner a fair return on the capital actually invested, and that rates should be so fixed that each article of freight carried over the road should pay the cost of its transportation, and in addition thereto, an equitable proportion of the fixed charges, and of the dividends to be paid to the stockholders. But the cost of transporting any article of freight is not known and cannot be ascertained; nor can the amount and character of the traffic which has to be assessed with these charges be known in advance. Moreover, the principles which should govern the equitable distribution of such charges remain to be discovered. But assuming that freight rates can be made according to this theory, it might, and probably would be found that they were in many cases higher than the rates in effect on a competing railroad or water line—so that the rates made upon mathematical principles and according to rules of equity would be of no practical use.

As the value of service theory is correct, the above example merely shows that this method of application is impracticable. This, however, does not affect the correctness of the value of service principle.

How, then, are freight tariffs made?

It cannot be said that they are made in the sense that they are products of manufacture. It would be more correct to say that they are products of evolution. One generation transmits them to the next, with such additions and modifications as traffic conditions necessitated. It would be interesting to trace the development of modern freight tariffs from the simple rate sheets of the earliest days of railroads, to the modern, highly organized tariffs, with their elaborate classifications embracing thousands of articles, and to note that influence and effect of surrounding circumstances that from time to time necessitated modifications and additions—and, especially, the effect of increasing competition. Unfortunately, the information which would be necessary to make such a study is not obtainable.

It cannot be said that, in modern times, railroads make tariffs; they



can only adjust them to varying conditions. This work is performed by a department known as the traffic department or commercial department. Rate adjusting is not a science, but a profession taught in the school of experience. The proficiency of traffic men can only be acquired by many years of practical work in the several branches of the service. Generally traffic men grow up with their respective railroads, and are familiar with the commercial and economic conditions of the country tributary to their respective railroads. They are in close touch with the public, either directly or through their numerous assistants—division freight agents, station agents, and soliciting agents. By being in close touch with shippers they can acquaint themselves with their needs and requirements. It has been said that traffic men should know the business of shippers almost as well as the shippers do themselves. These traffic men are also in close touch with the transportation departments of their respective roads, and keep themselves informed of the movement of traffic and the factors which influence the economy of movement. They know whether the road is being worked to its full capacity, or whether it is desirable to increase the volume of business and thus reduce the expenses of operation.

Adjusting freight rates is practical work for men who have special training for it and large experience. They may not all be able to explain underlying principles, such as the value of service, but they have used this principle for years, and apply it intuitively in every case which comes before them. Indeed, it has become with them a habit to apply it—not unlike the lawyer who is called upon to give opinions on questions involving facts and the law, the traffic man is called upon to decide rate questions with promptitude, upon the facts and the law, according to his best judgment. He must be familiar with commercial and economic laws, as well as state and interstate laws regulating rates. It is apparent that in adjusting rates, or in making new rates when it is within their power to do so, these traffic men decide what is an equitable division between the railroad and the shipper, of the increment of value. Frequently his decision results from bargaining and compromise. But generally it is arbitrary. Hence, laws regulating railroad rates are imperatively necessary, to give the shipper relief in case of errors of judgment of railroad men. While decisions of railroad men are necessarily arbitrary, it should be borne in mind that railroad men appreciate the importance of treating their customers fairly, and of fostering and developing the business of their roads. Railroad men can no more disregard the interests of the shipper than those of the railroads they represent. The saying that the interests of the railroads and the public are identical is trite, but true. The present laws afford ample protection to the shipper and to the railroads, except, as we have seen, in the case of state-made tariffs.

#### VALUE OF SERVICE THE CORRECT STANDARD OF REASONABLENESS OF RATES.

The standard of reasonableness of rates must fulfill the following conditions:

1. It must be based upon correct principles. The measure to be applied must have direct relation to the thing to be measured.

2. It must be in harmony with the underlying principles of practical rate adjustment.

3. The method of applying the standard in determining the reasonableness of a rate must be practicable.

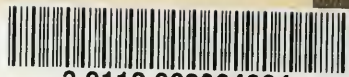
We have seen that neither the theory of cost of transportation, nor of the fair value of the property need comply with any of these requisites. I believe that the value of service is the correct standard of reasonableness of rates; the principle constitutes a basis for judging rate questions that is broader and sounder than that now being used. It will clear the complex question of rate adjustment of irrelevant matter, and greatly simplify it. Of course, it cannot be made the basis of a formula for general application. Each case must be determined by itself on its merits according to the facts and the law bearing upon it in the same manner as the Interstate Commerce Commission and the courts do in cases arising under the Act to Regulate Commerce.

I believe that the value of service principle fairly and intelligently applied would result in conclusions that are just to the shipper as well as to the railroad.









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